Human Systems
integration division

Perceptual Image Compression

Objective

To develop image compression technology that will yield the highest possible image quality for a given bit rate.

Approach

Design simple, efficient models of human spatial, temporal, and color processing and incorporate these into compression technologies. Use vision to reduce the visibility of artifacts and to reduce file size and bit rate. Provides user control over desired picture quality; control over desired compression efficiency; and optimum compression at a given picture quality.

Impact

NASA missions generate vast quantities of image data. This technology will be needed by NASA to distribute compressed scientific and documentary images and video. Two patents have been awarded.

Information Technology

Potential Commercial Uses

- Medical applications such as storage and transmission of X-ray and MRI pictures
- Internet multimedia
- Cable TV, Advanced Television or HDTV
- Motion picture editing, transmission, and archiving
- Digital copiers, scanners, and facsimile

POC: Andrew B. Watson, Ph.D.

URLs: http://humansystems.arc.nasa.gov
http://vision.arc.nasa.gov/dctune/

E-mail: Andrew.B.Watson@nasa.gov